

REMOTE IDENTIFICATION OF EXPLOSIVES AND OTHER HARMFUL MATERIALS

ABSTRACT

The present invention is for a process of sensing chemicals with nanoparticles, particularly nanoparticles whose bandgap has been altered from that of their corresponding bulk material by reducing their particle size below their quantum confinement threshold.

5 The photoluminescent properties of these nanoparticles can be altered as a result of interaction with their chemical environment. Thus, by carefully understanding how a particular chemical species alters the chemical environment and changes the photoluminescence of the nanoparticles, the identification of—and the screening for—a wide range of chemical species can be accomplished. Furthermore, in embodiments in
10 which the chemical species of interest is a harmful material, detection and screening of said harmful material can be carried out in a pre-emptive manner.